

Abstract of the Disclosure

Provided are a variety of monomers suitable of producing photosensitive polymers, that are in turn, useful in photoresist compositions, through radical (cationic) polymerization including at least one multi-ring alkenyl ethers and one α -fluorinated acrylate. The resulting photoresist compositions exhibit both acceptable resistance to dry etching processing and light transmittance suitable for use with various light sources such as KrF excimer lasers, ArF excimer lasers or F₂ excimer lasers, in a photolithography process to produce fine photoresist patterns. In addition to the multi-ring alkenyl ethers and α -fluorinated acrylates, additional monomers comprising one or more cyclic aliphatic and heterocyclic compounds, both unsubstituted and substituted, in particular dihydropyrans, may be incorporated into the photosensitive polymers. Photosensitive polymers can then be produced by combining these various monomer units to form copolymers, terpolymers and higher order polymers, an exemplary embodiment of which may be generally represented by the formula V:

